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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/699,585	10/31/2003	Rahmi Hezar	TI-36533	1889
23494	7590	06/07/2004	EXAMINER	
TEXAS INSTRUMENTS INCORPORATED P O BOX 655474, M/S 3999 DALLAS, TX 75265			WILLIAMS, HOWARD L	
		ART UNIT	PAPER NUMBER	
			2819	

DATE MAILED: 06/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/699,585	HEZAR ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Howard L. Williams	2819	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on \_\_\_\_.
- 2a) This action is **FINAL**.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) 22-27 is/are allowed.
- 6) Claim(s) 1-3,6,10,13,15 and 21 is/are rejected.
- 7) Claim(s) 4,5,7-9,11,12,16-20 and 22-27 is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 31 October 2003 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____ .
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>103103</u> .	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
	6) <input type="checkbox"/> Other: _____ .

The examiner acknowledges receipt of the information disclosure statement 31 October 2003. An initialed copy of the citation form should accompany this action.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 6, 10, 13, 15 and 21 are rejected under 35 U.S.C. 102(b) as anticipated by Voorman et al. (US 5,103,228). Voorman et al. discloses a sigma-delta modulator with a third order loop filter (5,6,8). The first filter (8) is coupled to the quantizer (10) and feedback DAC (23) (Voorman uses the term mixer), and a second filter with active gain (6). The second filter also receives as input feedback from a second DAC/mixer (26) and the input signal. Comparison of the quantizer input is provided by the latch stages. Voorman was not noted to give particular gain factors but disclose the gain as “high gain” and discloses that the baseband gain is approximately 60-70 dB more than at high frequencies (col. 5, lines 50-55). The second filter can be viewed as the combination of filter sections 5 and 6 to provide a second order transfer function.

Claims 4, 5, 7-9, 11, 12 and 16-20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 22-27 are allowed.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Yamakido et al. (US 5,227,795) discloses a first order passive delta-sigma ADC. Benabes et al. discloses passive, continuous time filters for delta-sigma ADC with and without filter impedance matching. White et al. discloses a fourth order sigma-delta ADC using continuous time noise shaping filters. Schreier et al. discloses continuous time delta-sigma ADC including a third-order modulator and a sixth order modulator using tank circuits.

Any inquiry concerning this communication should be directed to Howard L. Williams at telephone number 571.272.1815. The Patent and Trademark Office has a new central facsimile number for application specific correspondence intended for entry, it is 703-872-9306.

6/1/04  
Voice 571.272.1815

  
Howard L. Williams  
Primary Examiner  
Art Unit 2819